

METHOD AND DEVICE FOR THE DETECTION OF MICROORGANISMS BY  
FIBER OPTICS

ABSTRACT

The objective of the present invention is the  
5 detection/ monitoring of microorganisms present in the  
air, water or foodstuffs through the use of a fiber optic  
biosensor with an evanescent-field. A first  
concretization of the present invention concerns a method  
for detection of contamination by specific microorganisms  
10 through the use of the evanescent-field of a sensitive  
fiber optic characterized by stages of: a) exposing the  
evanescent-field of the sensitive fiber optic using an  
appropriate technique based on physical and chemical  
properties; (b) permitting immediate contact of the  
15 exposed evanescent-field obtained in the stage (a) with  
the sample to be examined, with the aforementioned sample  
having a form adequate so as to obtain the generation of  
an optical signal in response to the presence of  
microorganisms in the sample; and, (c) demodulating the  
20 optical signal generated in stage (b) and using this value  
to quantify the microorganisms through an appropriate  
method. In a second concretization, the invention is  
directed to a composition for use in the detection of  
microorganisms characterized by comprising a selective  
25 culture medium for microorganisms needing to be detected  
and reactants capable of altering the properties of the  
medium to favor the interaction of the system fiber-  
microorganism interaction. In a third concretization the  
invention refers to a device for surveying microorganisms

through the insertion of a sensitive fiber optic (11),  
with an adequately exposed evanescent-field, into a  
surface or volume of a biological culture medium (12)  
specific for the microorganism to be detected, comprising  
5 a demodulation system based on a fiber optic circuit and  
related components.